

Serial No. 10/729,201

Atty. Doc. No. 2002P06120WOUS

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REMARKS

Claims 1-9 and 11-22 are pending in the application. Claims 1-9 and 11-22 are rejected under 35 USC 112, first and second paragraphs, as a result of the use of the term "focused length". Claims 1-4 and 14-20 are rejected under 35 USC 103(a) as being unpatentable over Kurz in view of the newly cited patent to Foster. Claims 5-9, 11-13 and 21 are rejected under 35 USC 103(a) as being unpatentable over Kurz and Foster in view of Marcin.

The claims have been amended herein to eliminate the use of the term "focused length" and to use in its place the term "focal spot" as suggested by the Examiner. Accordingly, entry of this amendment is believed to overcome all of the claim rejections under 35 USC 112.

Independent claims 1 and 15 have been amended to clarify that the focal spot has a shape "with a width corresponding to a width of the surface to be melted and a length in a direction of movement of the focal spot transverse to the width that is less than the width." In contrast, Kurz teaches away from such a specially shaped energy spot by describing a round spot, as stated by the Examiner. Furthermore, there is no teaching or suggestion in Kurz or any of the cited prior art patents to have an energy spot geometry with a width corresponding to a width of the surface to be melted. Thus, entry of this amendment is believed to overcome the rejection of claims 1-4 and 14-20 under 35 USC 103(a).

Independent claim 15 is further amended to include the limitation of "controlling a power intensity at opposed ends of the width of the focal spot to be greater than a power intensity in a central area of the width of the focal spot." Claim 6, depending from claim 1, includes similar limitations. In contrast, Marcin describes the power intensity at column 7, line 55 as being 10 watts/cm², and he does not describe any variation of this value across the spot diameter, thereby teaching away from amended claim 15. Furthermore, none of the other cited prior art references teach or suggest such an increased power intensity at the ends of a focal spot having a width that is greater than its length in a direction of movement. Thus, entry of this amendment provides further reasons for overcoming the rejection of independent claim 15 and its dependent claims and claim 6 depending from claim 1.

Each of the pending claims include the limitation that the width of the focal spot corresponds to a width of the surface to be melted. Claims 5, 9, 12, 13 and 21 include further limitations directed to control of the width of the focal spot during operation to adapt the width

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of the spot to the width of the area to be melted. The Examiner looks to Marcin for motivation to vary the size of the focal spot because Marcin teaches a first spot size and then a second spot size. However, the process of Example 1 of Marcin uses a constant first spot size during the deposition of eight rows adjacent rows of material; then the deposition process is stopped and the spot size is changed to a constant second spot size to cover the entire area of newly deposited material to re-melt it to eliminate cracks. Marcin does not control the spot size during the deposition step to accommodate changes in the width of the area to be melted, as is required by claims 5, 9, 12, 13 and 21. The combination of Marcin with Kurz and Foster would suggest a two-step process wherein a constant spot size is used to deposit new material, then a second larger spot size is used to re-melt the newly deposited material to repair cracks. The present invention avoids the problematic cracks in the first place by avoiding the overlapping of layers of deposited material. Thus, the rejection of claims 5, 9, 12, 13 and 21 is not supported by the cited art.

The applicants believe that no new search is required by the amendments made herein because these limitations were previously presented in the claims, but are simply further clarified herein to emphasize their differences from the cited prior art. Accordingly, entry of this amendment under 35 USC 116 is respectfully requested.

Please grant any extensions of time required to enter this paper. The Commissioner is hereby authorized to charge any appropriate fees due in connection with this paper or credit any overpayments to Deposit Account No. 19-2179

Respectfully submitted,

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